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ABSTRACT

This paper asserts that the reason so many high school graduates are functionally illiterate may be that the form of economic organization in the United States does not sufficiently value or make use of intelligence. The paper reviews studies that report both the decline in general knowledge of high school graduates and the promotion of programs to link educational content more closely to the content of existing jobs. A discussion of the effects of capitalism on cognitive development and work performance includes trivialization of skill within the workshop, breaking down the mental requirements of work, ignoring higher levels of cognitive skills, and penalizing traits such as creativity, aggressiveness, and independence. Implications of these four observations are summarized, and tables of data are appended. (AEA)

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SECOND THOUGHTS ON THE CAPITALISM-ENLIGHTENMENT CONNECTION:

ARE AMERICANS OVER EDUCATED OR ARE OUR JOBS DUMB?

by

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When Edward Donohue graduated from Copiague Senior High School in 1976 he had trouble reading his diploma. About a third of a million (one in ten) of that year's high school graduates shared Donohue's predicament they were funtionally illiterate. Donohue and his parents -- a nursing supervisor and a foreman for the New York telephone company -- went to court claiming $5 million in damages for the negligence of the school system. Three years earlier, Peter Doe, also funtionally illiterate, had sued the San Francisco School District for half a million dollars.

Donohue's and Doe's teachers may well have been negligent or incompetent. Yet in dismissing Doe's case the California Superior Court argued (plausibly if irrelevantly) that so many factors affect learning that it would be impossible to determine the reasons for his illiteracy. Many parents share the California court's wariness to point the finger at the schools. A 1976 Gallup poll indicated that parents of school children identified, as causes of what they saw as a decline in academic test scores, lack of parental attention, poor student motivation, too much television, and societal permissiveness (in that order) ahead of inadequate teacher attention to students.

There is a curious superficiality about Gallup's list. The hunt for culprits has been more trigger happy than searching. Significantly absent has been the possibility that an explanation of our lagging educational performance may be found in the manner in which our form of economic organization values and makes use of intelligence. To resort, with apologies, to the comfortable language of my own profession: the problem may not be with the supply of mental skills but with the demand.

The diagnosis, on the face of it, lacks plausibility. Indeed, so closely have capitalism and enlightenment been associated over the past two centuries that to identify capitalism as the problem may appear to openly court disbelief. There can be little doubt that the emergence of capitalism destroyed the forms of bondage -- slave as well as feudal -- upon which the duality of aristocratic education and plebian ignorance had for centuries rested. A system based on the broad diffusion of property ownership and the legal equality of all buyers and sellers had nothing to fear and everything to gain from the universal spread of development of all peoples abilities to gather information, analyse data and make independent and informed decisions. Employer and employee alike would reap the gains. Because modern industry, itself a child of capitalism, promotes the application of increasingly complex and intellectually demanding production technologies, so it is said, the development of the capitalist economy not only permits but requires increasing mental skills on the part of the labor force as a whole.

Formal education, by extending to the masses what had been throughout human history the privilege of the few, opens upper levels in the economic ladder for the first time to all with ability and willingness to attain such skills. Horace Mann, a major proponent of these views, wrote in his fifth report as Secretary of the Massachusetts State Board of Education in 1842:

> In great establishments, and among large bodies of laboring men, where all services are rated according to their pecuniary value...those who have been blessed with a good common school education will rise to a higher and higher point in the kinds of labor performed, and also in the rate of wages paid, while the ignorant sink, like dregs, and are always found at the bottom.

The capitalist economy, so the argument goes, both requires and rewards intelligence.

The historical evidence lends credence to Mann's reasoning. The epoch of capitalism and the epoch of mass education are one. Prior to the advent of capitalism and with some rather limited exceptions, (Presbyterian Scotland, Tokugawa Japan, some Islamic areas) even rudimentary literacy was confined to a small and privileged minority of the population. Indeed, a larger fraction of our youth now attend college than in colonial times attended elementary schools. In the poor countries of the world today, a strong positive statistical relation obtains between literacy, the extent of elementary education and other measures of schooling on the one hand, and the penetration of capitalist economic relations into peasant societies on the other.

While the facts speak loudly in support of the capitalism - enlightenment connection, they do not speak with a single tongue. Last year the World Bank reported that a number of illiterates had been on the increase for at least a decade in the capitalist countries of the third world. The decade which began with Cuba's successful national mobilization to eliminate illiteracy also saw India add 24.6 million to her unlettered ranks. Brazil, having hounded the worlds most renown literacy teacher, Paolo Friere,out of the country added 1.3 million to her illiterate population.

In the U.S., the number of graduating high school seniors relative to the number of 17 year olds - a figure which had grown over ten fold in the first two thirds of this century -- began to fall in the late 1960's. Most

notable here has been the decline in a broad array of test scores among our student population at all levels except the early grades of elementary school.

Concerned, the College Entrance Examination Board in 1977 appointed a commission, headed by former Secretary of Health, Education and Welfare Willard Wirtz. They begin their report: "Every year, for 14 years now, there has been a drop in the average scores more than a million high school juniors and seniors get on the Scholastic Aptitude Test they take in seeking admission to college." The CEEB's figures indeed show a significant decline: from an average SAT verbal score of 478 in 1962 to 429 in 1976. The declines since 1969 are particularly striking. By 1976 only 44 percent scored as high as the median mathematical score of 1969 (attained, definitionally, by half the test takers in 1969.) On the verbal SAT, only 39 percent scored above the 1969 median. Similar declines have been observed by the National Assessment of Educational Progress for 17 year olds, for the Iowa and Minnesota statewide testing populations, and on other tests. Christopher Jencks concludes his insightful survey of the data:

> Today's high school graduates have not read as widely as their predecessors, or at least they do not seem to know as much about the kinds of things young people traditionally learned from reading. They do worse on tests that ask about literature, history, politics, and scientific subjects. And they do not seem to think as carefully about the problems testers set for them, even when the solution does not require external information.

Two additional aspects of the test score decline are important. First, what apparently has not declined is literacy skills. The National Educational Assessment of Educational Progress test in Functional Literacy and Basic

Reading Performance shows a small increase over the period 1969-1973. Second, the decline in other test scores cannot be attributed entirely, or even in very large measure, to the changing composition of the test takers. The Wirtz committee concludes:

> From about 1970 on, the composition of the SAT taking population has stabilized with respect to its economic, ethnic, and social background. Yet the score decline continued and then accelerated... With a handful of exceptions the drop of scores in recent years has been virtually across the board, affecting high scoring and lower scoring groups alike.

As unprecedented as the drop in test scores, and more ominous, is the growing current of elite opinion which can only be termed anti-educational. Andrew Carnegie had termed education a "true panacea for all the ills of the body politic." President Truman's 1947 Commission on Higher Education affirmed that "universal education is indispensable to the full and living realization of the democratic ideal." But by the 1970's the dominant theme articulated by comparably distinguished individuals and bodies has become the problem of "over education." The report on democracy commissioned and published by the Rockefeller-funded Trilateral Commission is hardly atypical. Having identified the growth of higher education as a major source of the upsurge in egalitarian and democratic sentiment (charmingly termed "creedal passion" and identified as a contributor to the crisis of "governability" of the advanced capitalist nations) the author of the Trilateral Commission report recommends either a retardation of the growth of higher education, or a program to link the content of educational programs more closely to the content of existing jobs.

Lagging educational performance and a fall from grace among a segment of our national elite are prompting some educators to reconsider the manner in which the capitalist economic environment shapes our educational outcomes. It will be seen that underlying the presumed capitalism-enlightenment connection is a dubious understanding of the relationship between education, cognitive growth, productivity and jobs.

First, while the interdependence of economic life and its coordination through markets characteristic of capitalism does promote a decentralized decision-making structure, and thus provides some economic reward to a widespread development of information processing and decision-making abilities, it has historically been associated with a detailed division of labor and attendent trivialization of skill within the workshop. Adam Smith, whose celebrated pin factory was to become synonomous with the productivity gains associated with the division of labor, was well aware of this:

> In the progress of the division of labor, the employment of the far greater part of those who live by labor... comes to be confined to a few very simple operations... But the understandings of the greater part of men are necessarily formed by their ordinary employments... The man whose whole life is spent in performing a few simple operations...has no occasion to exert his understanding or to exercise his invention in finding out expedients for removing difficulties which never occur He...generally becomes as stupid and ignorant as it is possible for a human creature to become.

The capitalist economy, at least in its early stages, thus has a dual impact in its requirements for decision-making abilities - one operating positively through markets and the diffusion of economic power, and the other operating

negatively through the fragmentation of work internal to the enterprise. Moreover, with the ascendency of the giant corporation one must be skeptical of the extent of diffusion of decision-making power in the once competitive realm of market transactions.

Second, by concentrating information and decision-making at the apex of the corporate bureaucratic ladder, the capitalist organization of production promotes not an overall increase in the mental requirements of work, but a bifurcation of these requirements. Indeed the separation of the conception, planning and design of the work from its actual execution is actively promoted by advocates of "scientific management." The founder of scientific management, Frederick Winslow Taylor, told a Congressional committee in 1912:

> I can say, without the slightest hesitation, that the science of handling pig iron is so great that the man who is fit to handle pig iron as his daily work cannot possibly understand that science; the man who is physically able to handle pig iron and is sufficiently phlegmatic and stupid to choose this for his occupation is rarely able to comprehend the science of handling pig iron...The man who is fit to work at any particular trade is unable to understand the science of that trade without the kindly help and cooperation of men of a totally different kind of education.

That this concentration of decision-making and information-processing is not dictated by the requirements of modern technology, but is an attribute of the social organization of production is amply attested to by dozens of productivity-enhancing experiments with worker participation in production decisions.

Third, employers <u>are</u> willing to pay more for employees with more schooling, but they are not paying for (and are largely indifferent towards) the higher

levels of cognitive skill typically associated with more advanced educational credentials. Here the statistical evidence is uncommonly unanimous. Let us return to Horace Mann's faith in the productive effects of intelligence in modern industry. He had no doubt been much influenced by the opinions of the great textile manufacturers with whom he corresponded frequently. One had written to Mann in the early 1840's:

> Whenever a mill or a room should fail to give the proper amount of work, my first inquiry would be as to the character of the help, and if the deficiency remained any great length of time, I am sure I should find many who had made marks upon the payroll, being unable to write their names.

Interestingly, the records of a mill virtually identical to that of Mann's correspondent have been preserved, and a careful study of the number of pieces produced by each worker (they were paid by piece rates) revealed absolutely no statistical relationship between productivity and worker literacy (as measured by the marking of the payroll receipt book with a signature rather than an X.)

At least a dozen studies of contemporary data reveal similar results. My colleague Herbert Gintis and I have surveyed these studies, in some cases reanalyzing the raw data. There is a strong positive statistical correlation among all of the following: the years of schooling attained by workers, their incomes, and their scores on a variety of cognitive tests. What are the underlying causal relationships? Does schooling have an effect upon income? If so, does this effect operate by the schools' enhancing cognitive abilities and employers paying more for these skills? Does cognitive ability have an effect upon incomes? Or is the correlation between test scores and incomes merely a

statistical artifact produced by the joint association of both of these variables with years of schooling? The following answers can be given with some confidence, as they are supported virtually without exception by a large variety of independently conducted studies. Schooling has a strong causal effect on incomes even when cognitive test scores and socio-economic background are held constant. The statistical association of test scores to incomes of workers is negligible when the workers' years of schooling and socio-economic background are statistically controlled for. From these two findings we can generate a third: averaging the results of 12 studies, only 14 percent of the statistical relationship between schooling and income can be attributed to a causal relationship of schooling to cognitive prowess and of cognitive prowess to incomes. I conclude that the primary economic rewards to schooling are not strongly associated with the production of intellectual skills.

A caveat is in order: these figures do not show that the mental skills of workers are unimportant to the running of the economy. Less still do they show that people do not need to develop their intellectual abilities. What my argument suggests is merely that the mental skill demands of work are so limited compared to the mental skills produced by our schools and to the possibilities for acquiring additional skills on the job, that mental skill differences among individuals are of little importance to employers and are not rewarded in significant wage differentials. (Naturally, extremes of the skill distribution are recognized in pay differences.)

Fourth (this is my last critical observation on the implicit economics of the capitalism enlightenment connection): schools do reward -- through

higher grades -- smart kids; they also reward good kids. Neither smartness nor goodness is generally considered to include creativity or independence of thought. It is in singling out and perhaps in producing 'good kids' -- not in producing smart kids -- that schools find their primary economic function. What it takes to get good grades is revealed in numerous studies of the grading process: mastery of the relevant material and "good citizenship." One study, by economist Peter Myer, allows us to identify which personality traits (as perceived by one's school peers) are associated with getting lower or higher grades than would have been predicted by the student's cognitive test scores. The penalized traits: creativity, aggressiveness, independence. The rewarded traits: perseverence, dependability, consistency, punctuality, and others. The personality traits associated with higher than predicted grades are precisely those, as the research of my colleague Richard Edwards has shown, which are associated with higher than average on the job supervision ratings.

The implications of these four observations on the relationship of schools, work, and cognitive development are fairly clear. While grades and other credentials have some bearing on getting ahead in the workaday world, moving up the job ladder is strikingly unrelated to the development of one's ability to think. Far from requiring the greatest development of the mental skills of all, the top down structure of the capitalist economy treats universal cognitive development as a byproduct of the school system, a desirable byproduct perhaps, but one whose limited economic value makes it a second class claimant on scarce resources and a weak motivation to the students themselves. Hence

my original diagnosis: the problem of mental development must be seen more as a problem of employer demand for mental skills, than as a problem of their supply.

A further implication will already have occurred to the attentive reader: the implicit economics of the capitalism enlightenment connection is flawed in only one respect. Its proponents are certainly correct that the broadest diffusion of economic and other decision making is conducive to mental development. Their error is simply in characterizing capitalism as such a system of decentralized decision making. If not capitalism, then what kind of economic order could embrace general intellectual development not only as a moral objective but as a precondition for its economic success? The answer, it seems clear, is a system of production in which the people who do the work -- in large production units or small -- determine, through workers councils or some other democratic institutional arrangements, how production will be conducted. Corresponding to this production system is a political system in which all adults were actively participants -- through voting, face to face meetings, referenda, recall, and the like -- in local and national decision making. This society,which may without recourse to rhetoric be called a socialist democracy,would value the intelligence of its members not only as a good thing, but as a life and death condition for the success of the social order as a whole.

It is perfectly clear that the facts of cognitive decline cannot be explained in any immediate sense by the above reasoning. I do not know why Edward Donohue has trouble reading. Nor will my argument support any inference that the nations which currently term themselves socialist will provide a more

auspicious environment for universal cognitive development, for their production systems are no less hierarchical than IBM or General Motors. My purpose here is much more modest: to respond to the evidence of possible cognitive decline in the U.S. and increase in illiteracy in the capitalist third world with a reconsideration of the underlying relationship of the economic system to mental development. This reconsideration may allow a more searching analysis of current trends in literacy and other mental skills, but I cannot claim to have done that here.

Appendices

1. Appendix 1: The Relationship of Literacy to Economic and Political Structure

   Table 1: Cross National Analysis of Literacy and Resource Allocation to Primary Schooling

2. Appendix 2: The Contribution of Measured Cognitive Abilities to the Statistical Association of Advanced Schooling to Higher Incomes and Occupational Status

   Table 2: The Cognitive Contribution to the Education-Economic Success Correlation

   A: Results of the Bowles-Nelson Study (non negro males with non farm backgrounds in the civilian labor force, 1962)

   B: Results of Other Studies

3. Appendix 3: The Implicit Reward Structure of Schooling and Its Correspondence to the Reward Structure of the Workplace

   Table3.1: Personality Traits Rewarded and Penalized in a New York High School (Partial Correlations to Grade Point Average Are in Parentheses)

   Table 3.2: The Correspondence Between the Implicit Reward Structure of Schools and Jobs

APPENDIX 1: THE RELATIONSHIP OF LITERACY TO ECONOMIC AND POLITICAL STRUCTURE

The table below presents a series of multiple regressions for a sample of 61 low and middle income countries. The sample, the definition of the variables, the shortcomings of the data, and the interpretation of some of the results is discussed in Bowles, "Capitalist Development...". The equations are presented here for the first time and do not appear in that source.

These regression equations are consistent with the following propositions:

(a) The development of a capitalist economic structure (as measured by the spread of wage labor) is associated with higher levels of literacy and resource allocation to elementary education. That this statistical relationship is not accounted for by the associated changes in the commodity composition of output is indicated by the finding (not exhibited here) that the coefficient of the labor force employed as wage workers remains statistically significant when the percentage of the workforce employed in agriculture is held constant.

(b) The dominance of the political system by a traditional (as opposed to capitalist) elite or by a communist party has strong negative and positive (respectively) effects on both literacy and primary school resource allocation.

TABLE 1: CROSS NATIONAL ANALYSIS OF LITERACY AND RESOURCE ALLOCATION TO PRIMARY SCHOOLING

Dependent Variables	Coefficient of Independent Variables (t-statistics in parentheses[a])			Percentage of explained: R^2
	Fraction of the labor force working for wages or salaries(logs)	Communist country (dummy variable)	Traditional elite (dummy variable)	
1. Literacy Rate	20.9 (6.4)			.41
2. Literacy Rate	17.3 (6.0)	23.2 (2.6)	-23.7 (-3.7)	.58
3. Literacy Rate (55 non-communist countries only)	19.6 (6.0)			.40
4. Literacy Rate (55 non-communist countries only)	17.5 (5.6)		-23.6 (-3.5)	.52
5. Primary School Teachers per child of Primary School Age	.0056 (5.1)			.31
6. Primary School Teachers per Child of Primary School Age	.0043 (4.8)	.013 (4.8)	-.006 (-2.9)	.58
7. Primary School Teachers per Child of Primary School Age (55 non-communist countries	.0049 (5.1)			.32
8. Primary School Teachers per Child of Primary School Age (55 non-communist countries)	.0044 (4.7)		-.006 (-2.8)	.42

a. All coefficients are significantly different from zero at the .01 level.

Source: Data sources enumerated in Bowles, "Capitalist Development...".

APPENDIX 2: THE CONTRIBUTION OF MEASURED COGNITIVE ABILITIES TO THE STATISTICAL ASSOCIATION OF ADVANCED SCHOOLING TO HIGHER INCOMES AND OCCUPTIONAL STATUS

This appendix substantiates the third objection to the implicit economics of the capitalism-enlightenment connection. Specifically, both panels of table 2 support the following proposition:

1. There is a strong statistical relationship between years of schooling attained and income (or some other measure of economic success.)

2. The portion of this correlation which may be attributed to any causal relation of schooling to cognitive ability and cognitive ability to economic success is rather small, averaging 17 percent in the four age groups of the Bowles-Nelson study, and 13 percent in the other eleven studies.

TABLE 2: THE COGNITIVE CONTRIBUTION TO THE EDUCATION-ECONOMIC SUCCESS CORRELATION

A: Results of the Bowles-Nelson Study (non negro males with non farm backgrounds in the civilian labor force, 1962).

Age group:	Zero order correlation of education to income (1)	Normalized regression coefficient of education holding adult IQ constant (2)	The cognitive component as a percentage of the zero order correlation [(1)-(2)]/(1)
25-34	.33	.22	.33
35-44	.46	.43	.07
45-54	.44	.41	.07
55-64	.37	.29	.22

B. Results of Other Studies[(a)]

Study	Proportion of Education-Economic Success Correlation Due to Cognitive Test Score
Conlisk (1971)	Less than 10%
Duncan (1968)	10%-25%
Cutwright (1969)	22%-35%
Duncan, Featherman and Duncan (1968)	20%
Bajema (1969)	13%
Griliches and Mason (1972)	12%-25% depending on which other variables entered
Sewell, Haller and Ohlendorf (1970)	7%
Taubman and Wales (1969)	4%
Fisher, Lutterman and Ellegard (1973)	Insignificant
Porter (1974)	19%
Porter (1974)	Insignificant

(a) A more detailed survey appears in Bowles and Gintis. Schooling in Capitalist America. Some recent studies are surveyed in C. Jencks, et.al. Who Gets Ahead? (N.Y.: Basic Books, forthcoming, 1979).

APPENDIX 3: THE IMPLICIT REWARD STRUCTURE OF SCHOOLING AND ITS CORRESPONDENCE TO THE REWARD STRUCTURE OF THE WORKPLACE

The data presented below are consistent with the fourth objection to the implicit economics of the capitalism-enlightenment connection. Table 3.1 presents partial correlations of the grade point average to the personality trait indicated, holding constant various cognitive test scores. (These data, and those presented in table 3.2, are presented in greater detail in Bowles and Gintis, Schooling...). Table 3.2 presents 2 equations, one predicting workers supervisor ratings of job proficiency, the other predicting the grade point average of high school students. In both cases the peer measured personality traits bear a strong statistical relation to the dependent variable.

TABLE 3.1: PERSONALITY TRAITS REWARDED AND PENALIZED IN A NEW YORK HIGH SCHOOL (PARTIAL CORRELATIONS TO GRADE POINT AVERAGE ARE IN PARENTHESES)

Rewarded		Penalized	
Perseverance	(.42)	Creativity	(-.33)
Dependibility	(.40)	Aggressiveness	(-.29)
Consistency	(.37)	Independence	(-.25)
Identification with School	(.36)		
Punctuality	(.33)		

TABLE 3.2: THE CORRESPONDENCE BETWEEN THE IMPLICIT REWARD STRUCTURE OF SCHOOLS AND JOBS

Dependent Variable	Normalized Regression Coefficients of Independent Variables (t-statistics are in parentheses)			Percentage of Variance Explained (R^2)
	Rules Orientation	Dependibility	Internalization of Norms	
Supervisor Rating	.28 (6.9)	.28 (7.2)	.29 (7.1)	.61
Grade-point Average	.22 (3.2)	.25 (3.9)	.17 (2.6)	.52

NOTES

Acknowledgements: This essay presents material jointly developed with Herbert Gintis.

Sources: Documentation for the empirical observations as well as sources for authors cited may be found in the appendices in the following:

Samuel Bowles, "Capitalist Developments and Educational Structure" World Development, Vol. 6, 1978, pp. 783-796.

Samuel Bowles and Herbert Gintis, Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life, (N.Y.: Basic Books, 1975).

Samuel Bowles, "Cuban Education and the Revolutionary Ideology," Harvard Educational Review, Vol. 41, No. 4. (Nov. 1971), pp. 472-500.

Samuel Bowles and Valerie Nelson, "The 'Inheritance of IQ' and the Intergenerational Reproduction of Economic Inequality," The Review of Economics and Statistics, Vol. LXI, No. 1, February 1974.

College Entrance Examination Board, Report of the Advisory Panel on the Scholastic Aptitude Test Score Decline, N.Y., 1977.

Christopher Jencks, "What's Behind the Drop in Test Scores?" Working Papers, July-August, 1978, pp. 29-41.

National Center for Education Statistics, The Condition of Education, Washington, D.C., 1977.

John Simmons, Unpublished paper, World Bank, 1978.